

Serial No. 10/747,722
Response to OA dated June 14, 2005

IN THE CLAIMS

1. (Previously Presented) A method, comprising:

selectively applying one or more etchants to an edge region of a substrate, said substrate having a central region adjacent to said edge region, wherein a metallization layer stack is formed at least on said central region, said metallization layer stack comprising at least an insulating layer, a barrier layer and a metal layer; and removing unwanted material at least of said metal layer and said barrier layer selectively from said edge region, wherein a first etchant is applied to remove material of said metal layer, and a second etchant is applied to remove material at least of said barrier layer.

2. (Original) The method of claim 1, further comprising removing material of said insulating layer selectively from said edge region.

3. (Original) The method of claim 1, wherein said one or more etchants comprise a diluted compound of nitric acid and hydrofluoric acid.

4. (Canceled)

5. (Previously Presented) The method of claim 1, wherein at least said second etchant comprises said diluted compound of nitric acid and hydrofluoric acid.

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6. (Previously Presented) The method of claim 1, wherein said first etchant is substantially devoid of nitric acid.

7. (Original) The method of claim 6, wherein said metal layer comprises copper.

8. (Original) The method of claim 1, wherein said substrate is exposed in said edge region during said material removal.

9. (Canceled)

10. (Original) The method of claim 1, further comprising applying said etchant at the back side of said substrate to remove unwanted material.

11. (Original) The method of claim 1, wherein said metal layer comprises copper and is formed by an electro-chemical process.

12. (Previously Presented) A method of reducing contamination of a substrate after formation of a metallization layer stack on said substrate, the method comprising:
selectively removing unwanted material from an edge region of said substrate by using a first etchant comprising a diluted compound of nitric acid and hydrofluoric acid as the main component; and

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removing unwanted metal with a second etchant other than said first etchant from said edge region prior to selectively removing unwanted material with said first etchant.

13. (Original) The method of claim 12, wherein at least material of a barrier layer of said metallization layer stack is removed.

14. (Original) The method of claim 13, wherein dielectric material is removed so as to expose said substrate at said edge region.

15. (Original) The method of claim 12, wherein unwanted metal of said metallization layer is removed.

16. (Canceled)

17. (Canceled)

18. (Original) The method of claim 12, further comprising removing unwanted material from a back side of said substrate.

19.-22. (Canceled)

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23. (Previously Presented) A method, comprising:

selectively applying one or more etchants to an edge region of a substrate, said substrate having a central region adjacent to said edge region, wherein a metallization layer stack is formed at least on said central region, said metallization layer stack comprising at least an insulating layer, a barrier layer and a metal layer, wherein applying said etchant is performed in an substantially air-tight ambient to substantially avoid the emission of gaseous nitric oxides; and
removing unwanted material at least of said metal layer and said barrier layer selectively from said edge region.

24. (Previously Presented) The method of claim 23, further comprising removing material of said insulating layer selectively from said edge region.

25. (Previously Presented) The method of claim 23, wherein said one or more etchants comprise a diluted compound of nitric acid and hydrofluoric acid.

26. (Previously Presented) The method of claim 23, whercin a first etchant is applied to remove material of said metal layer, and a second etchant is applied to remove material at least of said barrier layer.

27. (Previously Presented) The method of claim 26, wherein at least said second etchant comprises said diluted compound of nitric acid and hydrofluoric acid.

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28. (Previously Presented) The method of claim 23, further comprising applying said etchant at the back side of said substrate to remove unwanted material.

29. (Previously Presented) The method of claim 23, wherein said metal layer comprises copper and is formed by an electro-chemical process.

30. (Currently Amended) A method of reducing contamination of a substrate after formation of a metallization layer stack on said substrate, said metallization layer comprising copper, the method comprising:

selectively removing unwanted material from an edge region of said substrate by using a first etchant comprising a diluted compound of nitric acid and hydrofluoric acid as the main component, wherein said selective removal of unwanted material with said first etchant is performed in a protected environment to substantially avoid liberation of gaseous nitric oxide, wherein at least material of a barrier layer of said metallization layer stack is removed.

31. (Canceled)

32. (Previously Presented) The method of claim 31, wherein dielectric material is removed so as to expose said substrate at said edge region.

33. (Previously Presented) The method of claim 30, wherein unwanted metal of said metallization layer is removed.

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34. (Previously Presented) The method of claim 30, further comprising removing unwanted metal with a second etchant other than said first etchant from said edge region prior to selectively removing unwanted material with said first etchant.